

EDUCATION

1994	Ph.D. Atmospheric Science, University of Wisconsin Dissertation: Soil Wetness and Climate Variability	Madison, WI
1983	M.S. Meteorology, University of Wisconsin	Madison, WI
1979	B.A. Integrated Science, Northwestern University	Evanston, IL

EMPLOYMENT

	Geophysical Fluid Dynamics Laboratory/NOAA	Princeton, NJ
2001-present	Group Leader, Climate Dynamics and Prediction Group	
1984- 2001	Research Meteorologist, Climate Dynamics Group	

RESEARCH INTERESTS

- Climate variability and change on decadal to centennial time scales, with emphasis on
 - the role of the oceans in climate
 - changes in continental hydrology, including extreme events
 - large-scale modes of climate variability, with emphasis on their mechanisms and potential changes
- The use of global coupled ocean-atmosphere models for the study of climate variability and change
- Interactions between forced climate change and internal variability

HONORS & AWARDS

2005	Silver Medal, Department of Commerce
1996, 2003	Outstanding Scientific Paper Award, NOAA
1980-1983	National Science Foundation, Graduate Fellowship
1979	Phi Beta Kappa Honorary Society

ADDITIONAL ACTIVITIES

2006-present	U.S. CLIVAR Working Group on Drought
2005-present	U.S. CLIVAR Prediction, Predictability, and Application Interface Panel
2004-2005	U.S. CLIVAR Scientific Steering Committee
2003-2004	Co-Leader, GFDL Coupled Model Development Team
2001-2004	NSF Arctic System Science Program - OAI, Scientific Steering Committee
2000-2006	Joint Scientific Council/CLIVAR Working Group on Coupled Modeling
2000-2003	SEARCH Scientific Steering Committee (Interagency Arctic Program)
1999-2003	International CLIVAR Atlantic Implementation Panel
1995-2005	NSF Climate System Laboratory Computing Allocation Panel
1995, 2001, 2007	Intergovernmental Panel on Climate Change, Contributing Author
1995-1997	NOAA's Atlantic Climate Change Program, Scientific Working Group
1995-1996	Atlantic Climate and Circulation Experiment, Scientific Planning Committee

PAPERS SUBMITTED OR IN PRESS

1. Allen, M.R., N. P. Gillett, J. A. Kettleborough, G. C. Hegerl, R. Schnur, P. A. Stott, G. Boer, C. Covey, T. L. Delworth, G. S. Jones, J. F. B. Mitchell, T. P. Barnett, Quantifying anthropogenic influence on recent near-surface temperature change, *Surv. Geophys.*, doi:10.1007/s10712-006-9011-6, in press, 2006.
2. Delworth, T.L., R. Zhang, and M.E. Mann, 2007, Decadal to Centennial Variability of the Atlantic from Observations and Models. Submitted for AGU monograph "Past and Future Changes of the Ocean's Meridional Overturning Circulation: Mechanisms and Impacts"

RECENT PUBLICATIONS (1999-2007)

3. Hurrell, J.W., M. Visbeck, A. Busalacchi, R.A. Clarke, T.L. Delworth, R.R. Dickson, W.E. Johns, K.P. Koltermann, Y. Kushnir, D. Marshall, C. Mauritzen, M.S. McCartney, A. Piola, C. Reason, G. Reverdin, F. Schott, R. Sutton, I. Wainer, and D. Wright, 2006, Atlantic climate variability and predictability: A CLIVAR perspective. *Journal of Climate*, 19(20), 5100-5121
4. Zhang, R., and T.L. Delworth, 2006, Impact of Atlantic Multidecadal Oscillations on India/Sahel rainfall and Atlantic Hurricanes. *Geophys. Res. Lett.*, 33, L17712, doi:10.1029/2006GL026267.
5. Stott, P.A., J.F.B. Mitchell, J. M. Gregory, B.D. Santer, G.A. Meehl, and T.L. Delworth, Observational constraints on past attributable warming and predictions of future global warming. *Journal of Climate*, Vol. 19, No. 13, pp. 3055-3069.
6. Knutson, T.R., T.L. Delworth, K.W. Dixon, I.M. Held, J. Lu, V. Ramaswamy, D. Schwarzkopf, G. Stenchikov, and R.J. Stouffer, 2006: Assessment of Twentieth-Century regional surface temperature trends using the GFDL CM2 coupled models. *Journal of Climate*, Vol 19, 1624-1651.
7. Delworth, T.L., and K.W. Dixon, 2006: Have anthropogenic aerosols delayed a greenhouse gas-induced weakening of the North Atlantic thermohaline circulation? *Geophys. Res. Lett.*, 33, L02606, doi:10.1029/2005GL024980
8. Delworth, T.L., et al., 2006: GFDL's CM2 global coupled climate models – Part 1: Formulation and simulation characteristics. *Journal of Climate*, Vol 19, 643-674.
9. Gnanadesikan, A., et al., 2006: GFDL's CM2 global coupled climate models – Part 2: The baseline ocean simulation. *Journal of Climate*, Vol 19, 675-697..
10. Stouffer, R.J., A.J. Broccoli, T.L. Delworth, et al., 2006: GFDL's CM2 global coupled climate models – Part 4: Idealized climate change. *Journal of Climate*, 723-740.
11. Delworth, T.L., V. Ramaswamy, and G. L. Stenchikov, The impact of aerosols on simulated ocean temperature and heat content in the 20th century. *Geophysical Research Letters*, 32, L24709, doi:10.1029/2005GL024457.

12. Held, I.M., T.L. Delworth, J. Lu, K.L. Findell, T.R. Knutson, Simulation of Sahel drought in the 20th and 21st centuries. *Proceedings of the National Academy of Science*, 102(50),17891-17896..
13. Findell, K. L., and T. L. Delworth, 2005: A modeling study of dynamic and thermodynamic mechanisms for summer drying in response to global warming. *Geophysical Research Letters*, 32, L16702, doi: 10.1029/2005GL023414.
14. Zhang, R., and T.L. Delworth, 2005: Simulated tropical response to a substantial weakening of the Atlantic thermohaline circulation. *Journal of Climate*, **18**, 1853-1860.
15. Anderson, J.L., V. Balaji, A.J. Broccoli, W.F. Cooke, T.L., Delworth, et al (30 additional coauthors), 2004: The new GFDL global atmosphere and land model AM2/LM2: Evaluation with prescribed SST simulation. *Journal of Climate*, **17**, 4641-4673.
16. Manabe, S., R. T. Wetherald, P. C. D. Milly, T. L. Delworth, and R. J. Stouffer, 2004: Century-scale change in water availability: CO₂-quadrupling experiment. *Climatic Change*, **64**(1-2), 59-76.
17. Broccoli, A. J., K.W. Dixon, T. D. Delworth, T. R. Knutson, R. J. Stouffer, and F. Zeng, 2003: Twentieth-century temperature and precipitation trends in ensemble climate simulations including natural and anthropogenic forcing. *Journal of Geophysical Research*, **108**(D24), 4798, doi:10.1029/2003JD003812.
18. Rutherford, S., M. E. Mann, T. L. Delworth, and R. J. Stouffer, 2003: Climate field reconstruction under stationary and nonstationary forcing. *Journal of Climate*, **16**(3), 462-479.
19. Visbeck, M. Chassignet, E.P., Curry, R.G., Delworth, T.L., Dickson, R.R., and Krahmann, G., 2003: The Ocean's response to the North Atlantic Oscillation. Chapter 6 of The North Atlantic Oscillation: Climatic Significance and Environmental Impact. Geophysical Monograph 134, AGU.
20. Dixon, K.W., T.L. Delworth, T.R. Knutson, M.J. Spelman, and R.J. Stouffer, 2003: A comparison of climate change simulations produced by GFDL numerical models having different spatial resolutions. *Global and Planetary Change*, **37**(1-2),81-102.
21. Delworth, T.L., R.J.Stouffer, K.W. Dixon, M.J. Spelman, T.R. Knutson, A.J. Broccoli, P.J. Kushner, and R.T. Wetherald, 2002: Review of simulations of climate variability and change by the GFDL R30 coupled climate model. *Climate Dynamics*, **19**, 555-574.
22. Milly, P.C., R.T. Wetherald, T.L. Delworth, and K.A. Dunne, 2001: Increasing risk of great floods in a changing climate. *Nature*, **415**(6871), 514-517.
23. Levitus, S., J. I. Antonov, J. Wang, T. L. Delworth, K. W. Dixon, and A. J. Broccoli, 2001. Anthropogenic warming of Earth's climate system. *Science*, **292**(5515), 267-270.
24. Kushner, P. J., I. M. Held, and T. L. Delworth, 2001: Southern Hemisphere atmospheric circulation response to global warming. *Journal of Climate*, **14**(10), 2238-2249.

25. Broccoli, A. J., T. L. Delworth, and N-C Lau: 2001. The effect of changes in observational coverage on the association between surface temperature and the Arctic Oscillation. *Journal of Climate*, **14(11)**, 2481-2485.
26. Delworth, T.L., and K.W. Dixon, 2000: Implications of the recent trend in the Arctic/North Atlantic Oscillation for the North Atlantic thermohaline circulation. *J. Climate*, **13**, 3721-3727.
27. Manabe, S., T. R. Knutson, R. J. Stouffer, and T. L. Delworth, 2001: Exploring natural and anthropogenic variation of climate. *Quarterly Journal of the Royal Meteorological Society*, **127(571)**, 1-24.
28. Allen, M.R., P.A. Stott, J.F.B. Mitchell, R. Schnur, and T.L. Delworth, 2000: Uncertainty in forecasts of anthropogenic climate change. *Nature*, **407**, 617-620.
29. Delworth, T.L., and M.E. Mann, 2000: Observed and simulated multidecadal variability in the North Atlantic. *Climate Dynamics*, **16**, 661-676.
30. Delworth, T.L., and T.R. Knutson, 2000: Simulation of early 20th century global warming. *Science*, **287**, p. 2246-2250.
31. Delworth, T.L., and R.J. Greatbatch, 2000: Multidecadal thermohaline circulation variability driven by atmospheric surface flux forcing. *J. Climate*, **13**, 1481-1495.
32. Mehta, V.M., M.J. Suarez, J.Y. Manganello, and T.L. Delworth, 2000: Oceanic influence on the North Atlantic Oscillation and associated Northern Hemisphere climate variations: 1959-1993. *Geophys. Res. Lett.*, **27**, 121-124.
33. Knutson, T.R., T.L. Delworth, K.W. Dixon and R.J. Stouffer, 1999: Model assessment of regional surface temperature trends (1949-1997). *J. Geophys. Res.* **104(D24)**, 30,981-30,996.
34. Delworth, T.L., J.D. Mahlman, and T.R. Knutson, 1999: Changes in heat index associated with CO₂-induced global warming. *Climatic Change*, **43**, 369-386.
35. Dixon, K.W., T.L. Delworth, M.J. Spelman, and R.J. Stouffer, 1999: The influence of transient surface fluxes on North Atlantic overturning in a coupled GCM climate change experiment. *Geophys. Res. Lett.*, **26**, 2749-2752.

SELECTED PRESENTATIONS

12/2006 Invited	AGU Fall Meeting "Impact of Atlantic Multidecadal Variability on Regional and Hemispheric Climate"	San Francisco, CA
11/2006 Invited	CLIVAR Workshop on "Multidecadal to Centennial Global Climate Variability" "Simulation of Atlantic multidecadal variability and its global impact with the GFDL CM2.1 climate model"	Honolulu, Hawaii
10/2006 Invited	AMS Briefing at the U.S. Senate Building "Changes in the Tropical Atlantic of Relevance for Hurricanes: Natural Variability and Anthropogenic Climate Change"	Washington, D.C.

10/2006 Invited	Climate Diagnostics Workshop “Decadal Predictability and Predictions”	Boulder, CO
12/2005 Invited	AGU Fall Meeting “Simulated global-scale response to a substantial weakening of the North Atlantic thermohaline circulation”	San Francisco, CA
5/2005 Invited Models”	AGU Spring Meeting “Simulation of 20th century climate change in the GFDL Coupled	New Orleans, LA
2/2005 Invited	AGU Chapman Conference “The role of the thermohaline circulation in tropical-extratropical teleconnections”	Honolulu, Hawaii
1/2005 Invited	American Meteorological Society Annual Meeting “CO ₂ -induced changes in extratropical continental hydrology in the new GFDL climate model”	San Diego, CA
12/2004 Invited	AGU Fall Meeting “CO ₂ -induced changes in extratropical continental hydrology”	San Francisco, CA
11/2003 Invited	CLIVAR/PAGES/IPCC Workshop “A multi-millennial perspective on drought and implications for the future” "Continental summer dryness in the new GFDL climate model”	Tucson, AZ
3/2003 Invited	Duke University “The Atlantic thermohaline circulation and climate”	Durham, NC
2/2003 Invited	American Meteorological Society Annual Meeting “The Atlantic thermohaline circulation and climate”	Long Beach, CA
5/2002 Invited	Canadian Meteorological and Oceanographic Society Annual Meeting "The potential role of thermohaline circulation fluctuations in 20 th century North Atlantic climate”	Rimouski, Canada
5/2002 Invited	American Geophysical Union Spring Meeting "The potential role of thermohaline circulation fluctuations in 20 th century North Atlantic climate”	Washington, D.C.
8/2001 Invited	Utrecht University, Climate Conference 2001 “Observed and simulated decadal to centennial climate variability”	The Netherlands
3/2001 Invited	Wadati Conference on Global Change and Polar Climate “North Atlantic multidecadal variability and simulated 20 th century climate change”	Tsukuba, Japan
12/2000 Invited	American Geophysical Union - Fall Meeting “Implications of the recent trend in the Arctic/North Atlantic Oscillation for the North Atlantic thermohaline circulation”	San Francisco, CA
5/2000 Invited	Brookhaven National Laboratory “Simulation of climate change in the 20 th century”	Upton, NY

AFFILIATIONS

American Meteorological Society
American Geophysical Union